

REMARKS

Applicant respectfully requests reconsideration. Claims 1-4, 7, 8 and 16-20 were previously pending in this application. No claims have been amended. No new claims have been added. As a result, claims 1-4, 7, 8 and 16-20 are pending for examination with claims 1 and 18 being independent claims. No new matter has been added.

Rejections Under 35 U.S.C. §103

Claims 1-4 and 7 stand rejected under 35 U.S.C. §103(b) as purportedly being unpatentable over U.S. Patent Publication No. 20040131934 ("Sugnaux"). Claims 8 and 18-19 stand rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Sugnaux. Claims 16 and 20 stand rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Sugnaux as applied to claim 1 above, and further in view of JP 2003021410 ("Ishibashi"). Claim 17 stands rejected under 35 U.S.C. §103(a) as purportedly being unpatentable over Sugnaux as applied to claim 1 above, and further in view of U.S. Patent No. 6,656,633 ("Yamakawa").

Sugnaux is directed to electrochemical cells that employ non-aqueous organic electrolyte, solid polymer electrolyte and porous electrode materials. Sugnaux does not describe any kind of enhancement of the photoelectric transfer coefficient in a solar cell, much less an electrode for incorporation in a solar cell where the solar cell exhibits a photoelectric transfer coefficient of about 5.8% or greater.

Concerning the limitation "wherein the solar cell exhibits a photoelectric transfer coefficient of about 5.8% or greater," the Office Action refers to MPEP §2112.01(I), and states "where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established." However, MPEP §2112.01(I) further states that "the *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product." Thus, Applicant is provided the opportunity to rebut the Examiner's position by showing that the electrochemical cell of Sugnaux does not *inherently* exhibit a photoelectric transfer coefficient of about 5.8% or greater.

According to MPEP §2112(IV),¹ if a rejection based on inherency is made, such a rejection would only be viable if the electrochemical cell having the electrode active material of Sugnaux necessarily exhibits a photoelectric transfer coefficient of about 5.8% or greater. Without acceding that the electrochemical cell of Sugnaux or obvious variants thereof includes each and every feature of independent claims 1 and 18, Applicant refers to Example 1 and Comparative Example 2 of the current application. Both Example 1 and Comparative Example 2 of the current application include, for example, an electrode for incorporation in a solar cell, the electrode comprising a mixture of carbon carrying a metal and a binder, the carbon having a specific surface area equal to or larger than 100 m²/g, and the metal being either a pure metal or an alloy metal comprising at least one metal selected from the group consisting of Pt, Ru, Co, Ti, Ni, Al and Au. However, as provided by Table 1 of the current application, only the solar cell of Example 1 exhibits a photoelectric transfer coefficient of about 5.8% or greater. The only difference between the two examples was that the counter electrode of Example 1 was subjected to maintained heating at 120 C and a 300 kg/cm³ pressure for three minutes, while the counter electrode of Comparative Example 2 was not (see paragraph [0072] of the published specification). As a result, the solar cell of Example 1 exhibited a photoelectric transfer coefficient of 6.1% and the solar cell of Comparative Example 2 exhibited a photoelectric transfer coefficient of 5.4%. Indeed, the solar cell of Comparative Example 2 does not inherently exhibit a photoelectric transfer coefficient of about 5.8% or greater.

The solar cell of Comparative Example 2 comes significantly closer to the claimed invention than the electrochemical cell proposed by Sugnaux. The electrochemical cell of Sugnaux does not include the same properties as the solar cells of Example 1 or Comparative Example 2, for example, 50 wt% PVDF relative to carbon and carbon carrying 40 wt% of Pt. Certainly, the electrochemical cell of Sugnaux does not include an electrode having been subject to maintained heating at 120 C and a 300 kg/cm³ pressure for three minutes. Thus, as the solar cell of Comparative Example 2, a

¹ MPEP §2112(IV) states: "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic..." "To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient"... "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."

much closer device to the claimed invention than the electrochemical cell of Sugnaux, does not exhibit a photoelectric transfer coefficient of about 5.8% or greater, the electrochemical cell of Sugnaux proposed by the Examiner does not necessarily exhibit a photoelectric transfer coefficient of about 5.8% or greater.

Further, the Examples of the current application include electrodes comprising metals that are not disclosed by Sugnaux or would be obvious to incorporate in the electrode active material of Sugnaux. Examples 1, 3, 4, 6 and 7 incorporate a counter electrode made of binder polymer and carbon carrying Pt while Examples 2 and 5 incorporate a counter electrode made of binder polymer and carbon carrying both Pt and Ru. Neither Pt nor Ru (group VIIIB metals) are contemplated by Sugnaux and, given the cursory description provided in Sugnaux regarding inclusion of metals in the electrode active material, are not obvious variants of metals to be carried by carbon and mixed with binder polymer. Thus, for example, as Sugnaux does not consider incorporating Pt or Ru into the electrode active material, the electrochemical cell of Sugnaux does not necessarily exhibit a photoelectric transfer coefficient of about 5.8% or greater.

As discussed in a previous response, a central teaching of the current application is for the manufacture of electrodes to be incorporated in solar cells that, in turn, exhibit an increased photoelectric transfer. In paragraph [0005] of the published specification, for example, the problem of solar cells having a poor photoelectric transfer coefficient, as low as 1%, is discussed. Referring to paragraphs [0014] and [0047] as examples of how the problem of low photoelectric transfer in solar cells is addressed, carbon having a high specific surface area coupled with catalytic action of a metal carried by the carbon may enhance the charge transfer velocity in an electrode. Further, the electrodes described in paragraphs [0060] and [0067]-[0084] (Examples 1-6) give rise to solar cells that exhibit a photoelectric transfer coefficient that is about 5.8% or greater.

Thus, Sugnaux does not disclose nor make obvious solar cells that incorporate electrodes that have enhanced photoelectric transfer properties such that the solar cell exhibits a photoelectric transfer coefficient of about 5.8% or greater. Accordingly, the rejections of independent claims 1 and 18 should be withdrawn. For at least the same reasons as stated above for claim 1, the rejections of claims 2-4, 7-8, and 16-17 which depend from claim 1 should also be withdrawn.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. S1459.70092US00

Dated: 1-31-11

Respectfully submitted,

By Randy J. Pritzker
Randy J. Pritzker
Registration No.: 35,986
WOLF, GREENFIELD & SACKS, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
617.646.8000